PO-386 Audio Amplifier, w/50K Input

Components on Perf-Board

Audio
In
50K-"Z"

(c)

47K
See Text

(e)

Audio-In
Common

(b)

+9v

(n)

Pwr.
Off

(o)

(a)

(p)

(q)

50K
Pot

(r)

(f)

+ 10uf

10uf

(g)

(h)

(i)

1N914

47K

(j)

+9V. DC

(k)

6

3

IC-1
LM386

2 4

1 2 3 4 LM386 8 7 6 5

10K

.02uf

8 5

7

10uf +

470uf
+

.05uf

10 ohm

(m)

(l)

(t)

(s)

8-ohm
Speaker

(v)

(u)

(w)

Lo-"Z"
Phone
Jack
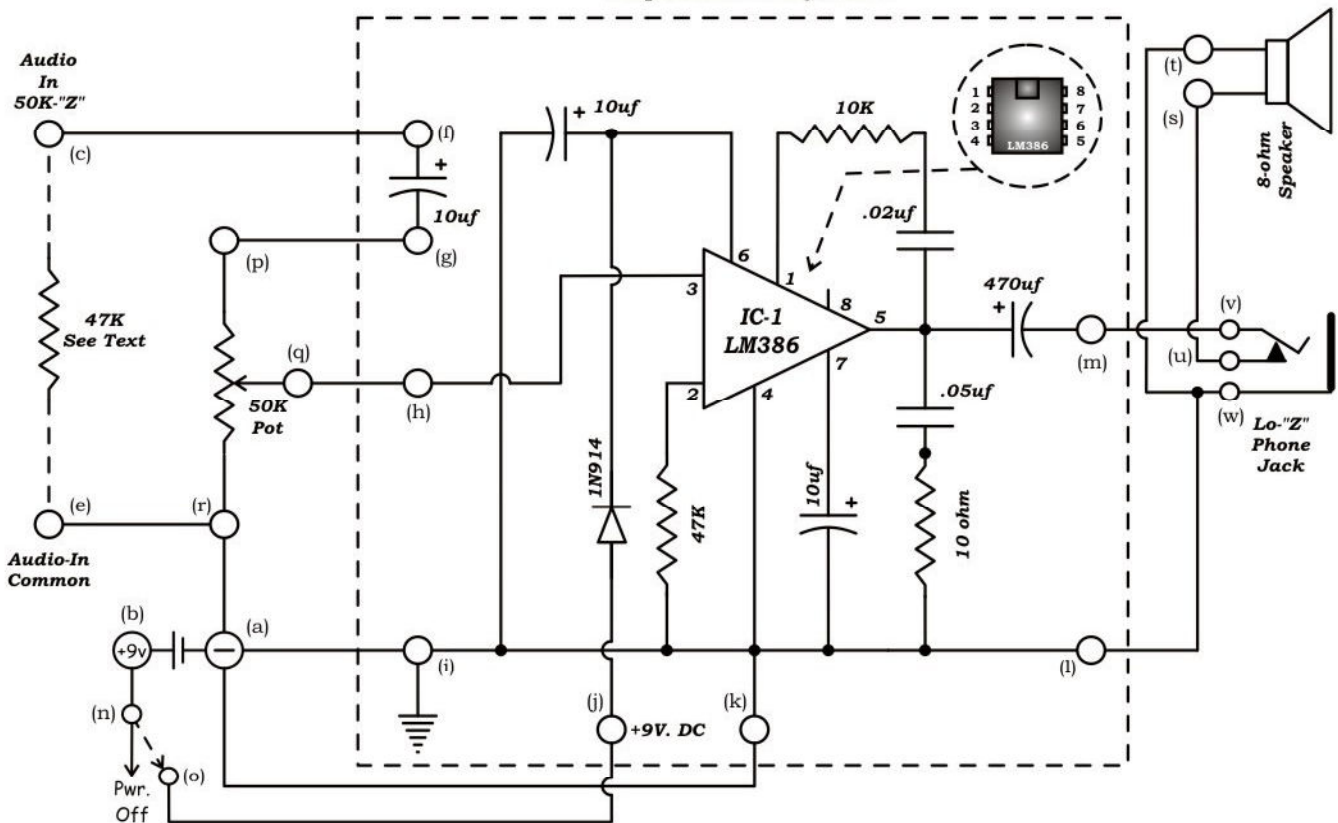
Audio Amplifier, Hi-"Z" Input, Schematic Diagram

PO-386, ASSEMBLY NOTES AND CONSTRUCTION:

PERF-BOARD ASSEMBLY & SOLDERING:
(See Pages Cover, 4, 5, 6 & 9)

Perf-Board, and associated parts are in a separate, plastic bag. Check Parts List on page #9, and get acquainted with parts. Mount the LM-386 Chip in it's proper place to begin with, and be certain to denote the positioning of it, where pin #1 is in it's proper position. 470uf, and 10uf capacitors are marked with a " - " on the "negative" side. The " + " side of these capacitors, have a longer lead. Make certain they are mounted, and soldered in their proper direction. Make certain the resistors all are placed in their specific areas, matching their values, which are shown in color-codes. The color-codes are denoted in the Parts List. The Diode has a stripe on one-end, and be certain to mount in on the board, in it's proper direction. This diode may have differing numbers on it, but there is only one diode, and the specific one supplied will work fine. Page #5 is showing the components-side of the board, and Page #6 shows the bottom-side of the board. Be very careful with wiring, positioning of components, and associated soldering. Creating un-wanted solder-bridges are very easy to mistakenly create. Progress slowly, and re-check your work, frequently. See Page #4 & 5, and note the Terminal-Blocks are mounted in positions:
(j) & (k), (l) & (m), (f), (g), (h), & (i).

FRONT-PANEL ASSEMBLY:
(See Pages: 7, 8 & 9) Note: Stick-Glue, or other "Paper-Glues" will work, below.

Locate: Front-Panel, Speaker w/Mounting Hardware, 50K Pot w/Switch, 1ea; Solder-Lug, & Phone-Jack. On Page #8, cut-out "Foil-Template", and "Dial-Plate". Use a sharp Hobby-Knife, and cut-out the denoted areas, on that page and templates. Using the "Foil-Template", make a rear-of-panel shield, with Aluminum Foil, and using Stick-Glue", paste on the back-side of the Front-Panel. Using Stick-Glue, paste the Dial-Palte, to the front-side of the Front-Panel. Mount the 50K-Pot w/Switch, and Phone-Jack to the back-side of the Front-Panel, with supplied hardware, and positioned as shown on Page #7. Locate the Speaker, and it's associated Hardware. The 4ea; 6-32 x 3/8" Machine Screws are inserted, from the front of the panel, through the 4-holes that are around the Speaker's opening. Note where the Solder Lug is positioned, and on the three-other machine screws, you will place a #6 Lock-Washer. The three Lock-Washers, and the Solder-Lug are all placed between the back-side of the Front-Panel, and the Speaker. The Speaker is then fastened with 4ea., 6-32 Hex-Nuts.

CHASSIS, CHASSIS-RAILS ASSEMBLY & FRONT-PANEL MOUNTING:
(See Pages: 4, 7 & 9)

Locate: Chassis-Panel, Battery-Holder w/Mounting Hardware, 2ea; Fahnstock-Clips, 2ea; Solder-Lugs, 7ea; #6 x 1/2" Sheet-Metal Screws, 2ea; Chassis-Rails & Perf-Board Assembly w/Mounting Hardware. As shown on Pages #4 & #7, mount the aforementioned. Mount the Front-Panel Assembly, as shown, also. The 47K Resistor, shown to be soldered across: (c) & (e) will be dealt with, in final testing.

PO-386, ASSEMBLY NOTES AND CONSTRUCTION:

WIRING:
(See Pages: Cover, 4, 5, & 7)

As shown in the pictures, all wiring is <u>Tightly, Twisted-Pairs</u>, unless otherwise noted, and shown. The wiring will be designated in (x) / (x) to (y) / (y), etc. . .You will see, as we progress. Solder-Lug, under Speaker is soldered to: Phone-Jack (w).

Tightly Twisted Pair, from: Perf-Board; (l) to Phone-Jack (w), and Perf-Board; (m) to Phone-Jack (v). Tightly Twisted Pair, from: Speaker; (s) to Phone-Jack (u), and Speaker; (t) to Phone-Jack (w). Tightly Twisted Pair, from: Perf-Board; (j) to 50K Pot/Switch (o), and Perf-Board; (k) to 50K Pot/Switch (r). Tightly Twisted 3-Wires, from: Perf-Board; (g) to 50K Pot/Switch (p), Perf-Board; (h) to 50K Pot/Switch (q), and Perf-Board; (i) to 50K Pot/Switch (r). Tightly Twisted Pair, from: Perf-Board; (i) to "Com. Gnd." Fahnstock (e), and, Perf-Board; (f) to "Com. Gnd." Fahnstock (c). Do-not solder resistor across (e) / (c) at this time. Tightly Twisted Pair, from: Battery Holder, from: (a) to 50K Pot/Switch (r), and, Battery Holder, from: (b) to 50K Pot/Switch (n). This concludes assembly, and wiring of the set.

TESTING:
(See ALL Pages)

There are 3ea, Resistors supplied, that will be across (c) and (e), depending on loads needed for the amplifier to sound, and work properly. The Resistor may not be needed,
if the attached Receiver has it's own LOAD, or maybe you want to use another Load-Source, such as a Matching Transformer: PO-111 Assembly, or "72-725" Transformer, listed in catalog: http://www.peeblesoriginals.com/catalog/72.php.

For starters, clip the 47K across (c) and (e), and connect Amplifier to Receiver, using Twisted-Pair, as short as possible, or Audio-Coax. With Amplifier's switch turned off, install 9V-Battery. Turn-on Amplifier, and tune Receiver to a station. Denote sound with Audio-Gain at a position that has comfortable volume. If sound is not real quality, you may want to go to the 100K Resistor. Or, if sound is low, you may want to go to the 10K Resistor, or no Resistor. Experimentation here, is necessary to obtain best volume, and clearest, most comfortable sound.
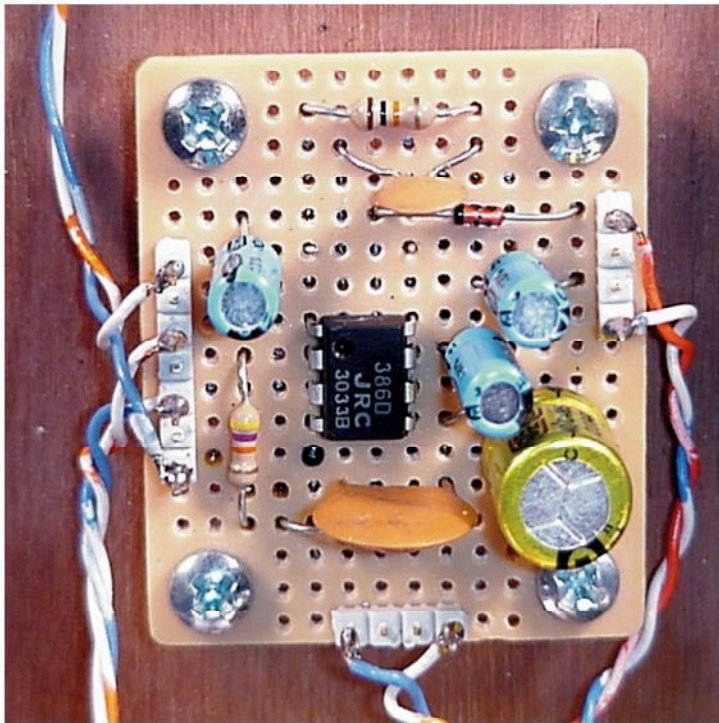
If there is no sound, then there has been an error in construction. Re-check all your work, carefully. Good listening, and have lots of fun!

peeblesoriginals@comcast.net In case of real troubles, but PLEASE, this set works well, and usually mistakes in construction are easy to locate.
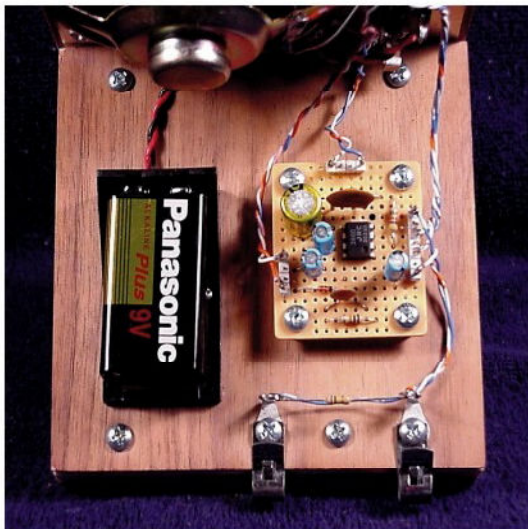
Front-Panel, Rear

Perf-Board Assy, Top

Chassis, Front-Panel, Rear

Chassis-Top, Rear

Chassis-Bottom

VIEWS:
Front-Panel,
Chassis-Board,
Perf-Board

Audio-In
50K-"Z"

+9V. DC

(f)

(c)

(j)

.02uf

1N914

(o)

(n)

(b)

10K

10uf

(g)

(p)

(k)

(a)

*
4
7
K

50K
Pot

10uf

10uf

(h)

(q)

1 8

2 7

3 6

4 5

LM386

47K

470uf

Top-Runs

(e)

(r)

(i)

.05uf

Component
Connections
Termination
Points

10-ohm

Audio-In
Common

(l)

(m)

Bottom-Runs

*See Text

(v)

(u)

Lo-"Z"
Phone
Jack

(w)

(t)

(s)

8-ohm
Speaker
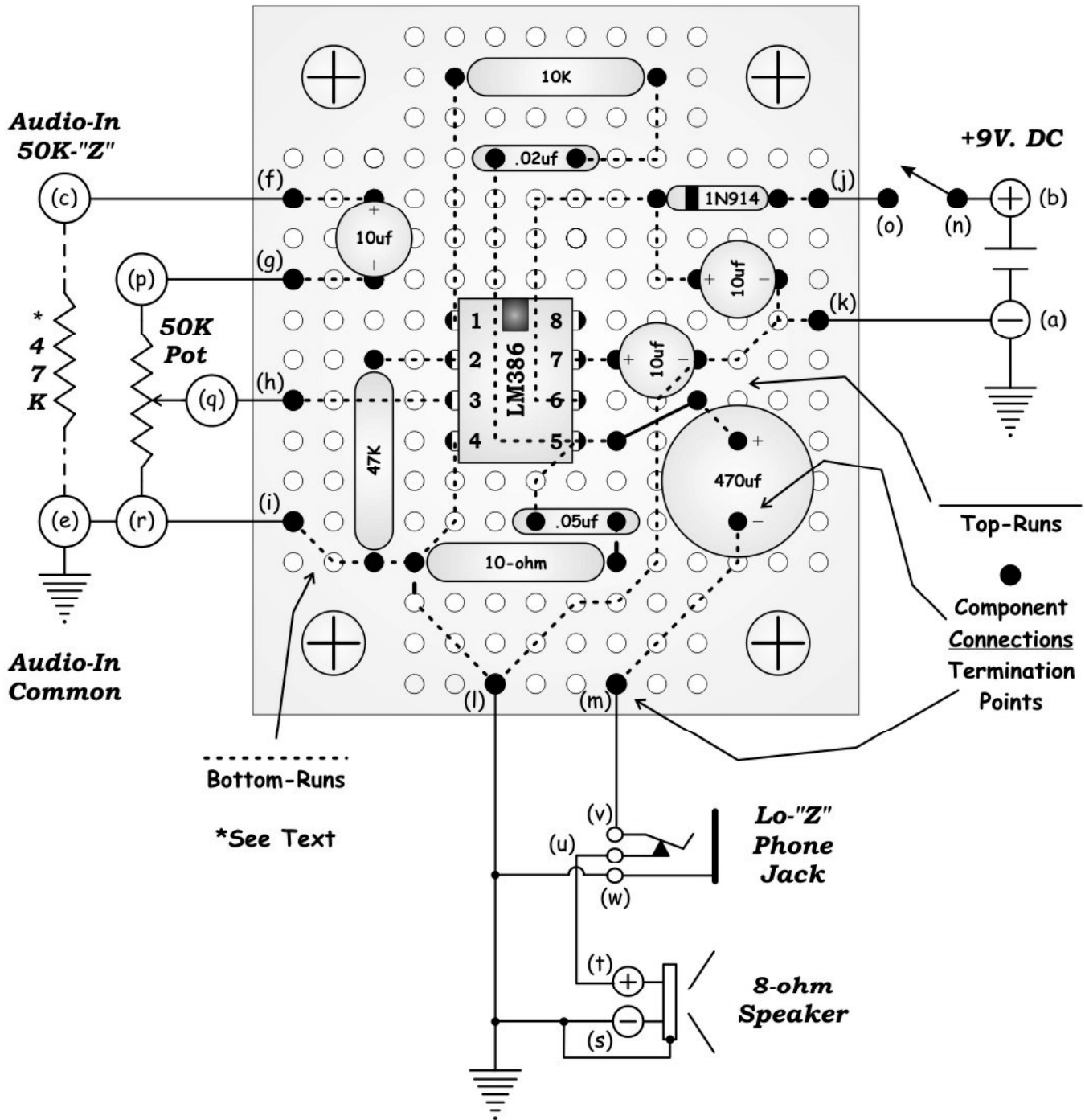
Audio Amplifier, Hi-"Z" Input,
Component Layout/Wiring, Top View

Components On-Top

Bottom-Runs

10K

.02uf

1N914

10uf

10uf

10uf

470uf

8
7
6
5
LM386
1
2
3
4

10uf

47K

.05uf

10-ohm
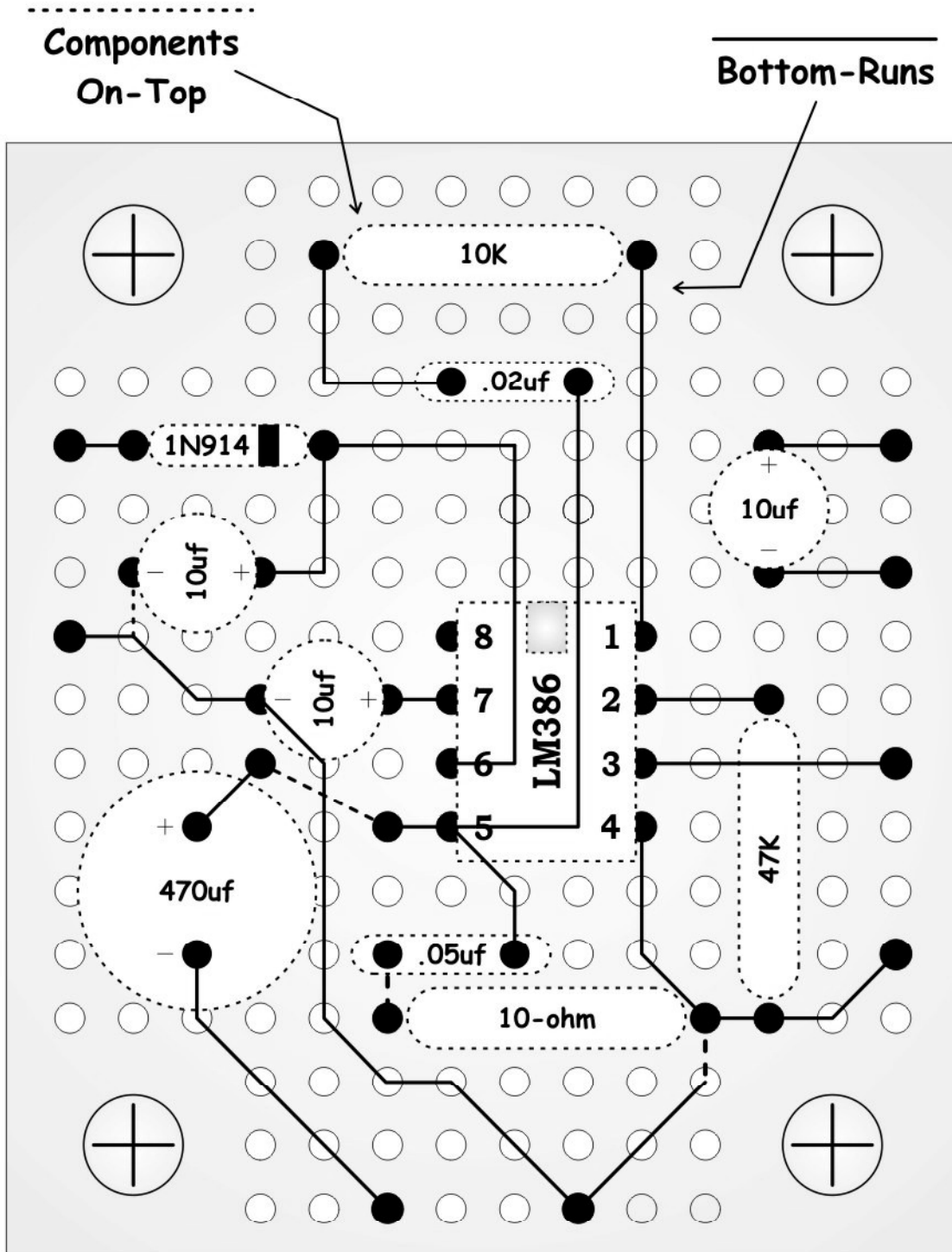
Audio Amplifier, Hi-"Z" Input,
Component Layout/Wiring, Bottom View

Input
50K
Load
to (g)

Com.
Gnd.
To (i)

See Text

(c) [47K] (e)

Amplifier Circuit

(f)
(g)
(h)
(i)

10K
.02uf

1N914

(j)
(k)

10uf
10uf
10uf
47K

LM386
1 8
2 7
3 6
4 5

10uf
470uf
.05uf
10-ohm

(l) (m)

9V.
Battery

(a)
Black
(b)
Red

(n) (o)

(q)

(p)   (r)

(s)

(t)

Speaker

Phone
Jack
3.5-mm

Audio-Gain Control
Power Switch

Front
Panel

(w)
(u)
(v)

(t)

Speaker

(n)   (o)

(s)

(p)   (q)   (r)
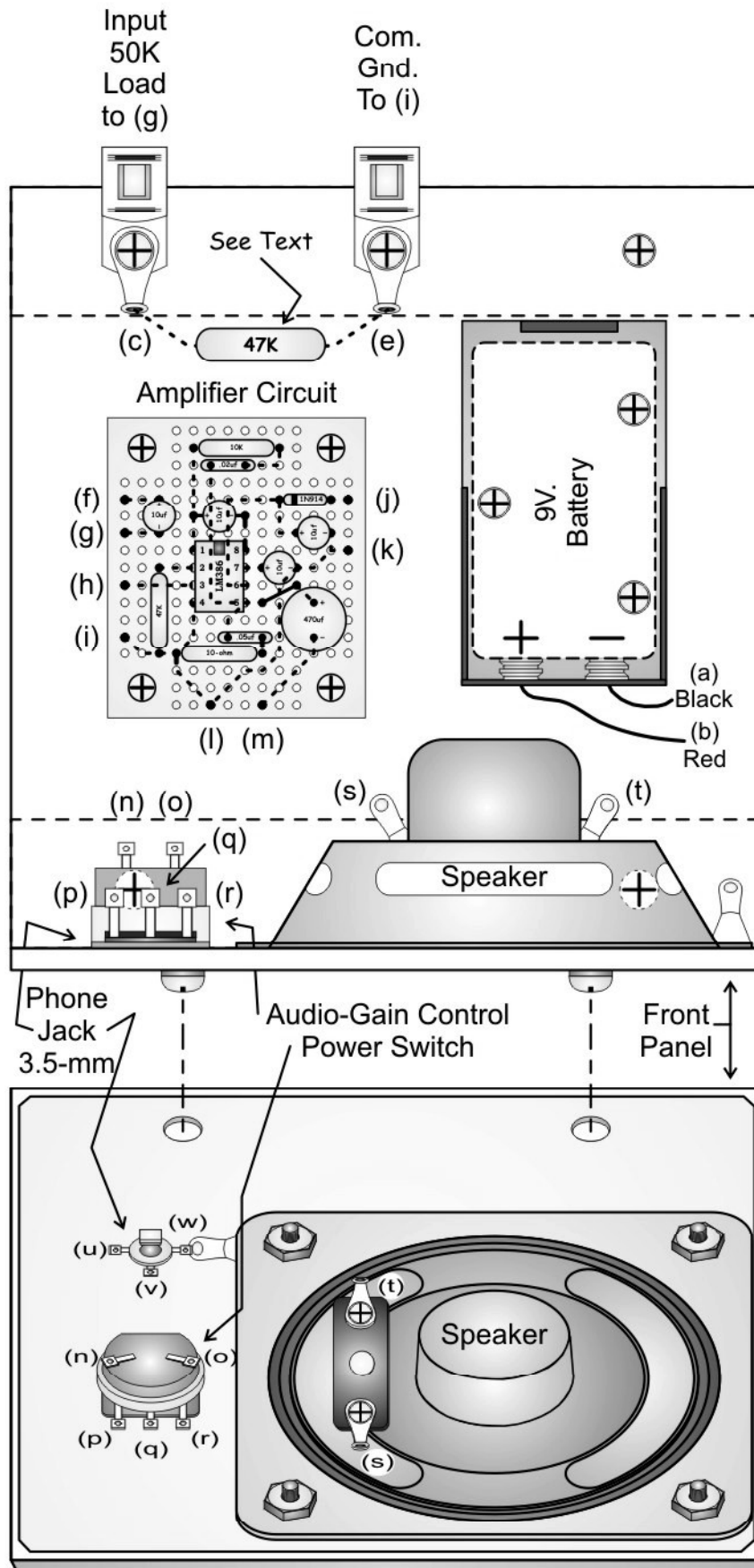
Audio Amplifier, Hi-"Z" Input,
Chassis/Panel/Layout/Wiring

CUT-OUT
WITH
SHARP
HOBBY-KNIFE
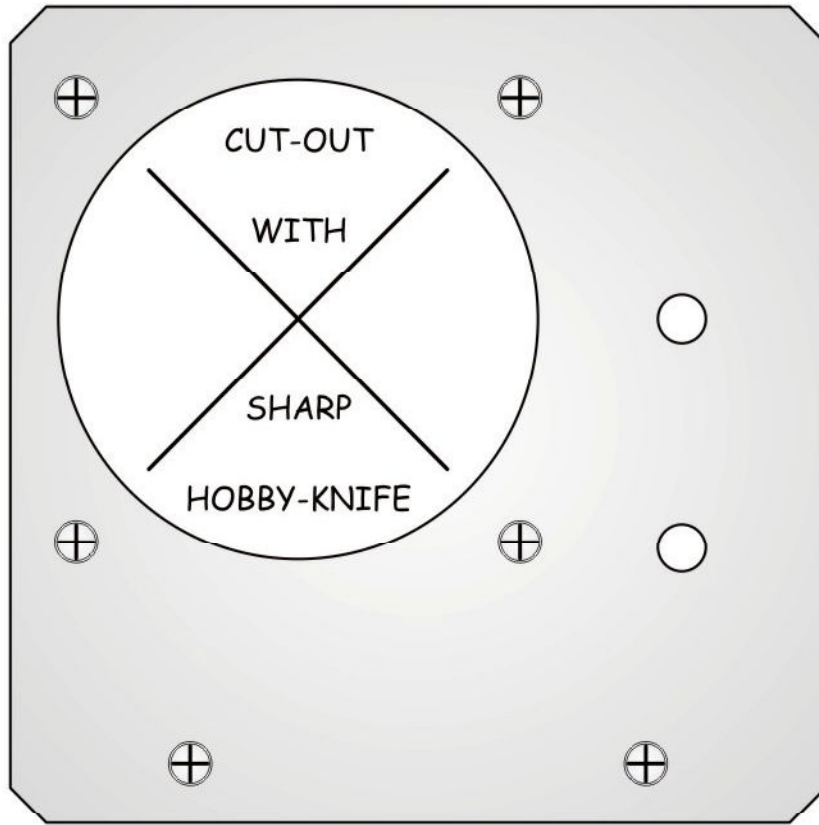
FOIL, Backside Front-Panel, Template

CUT-OUT
WITH
SHARP
HOBBY-KNIFE

DIAL-PLATE, Front-Panel

Model No:
PO-386

AUDIO - GAIN

PWR
OFF

LO-"Z"
PHONES
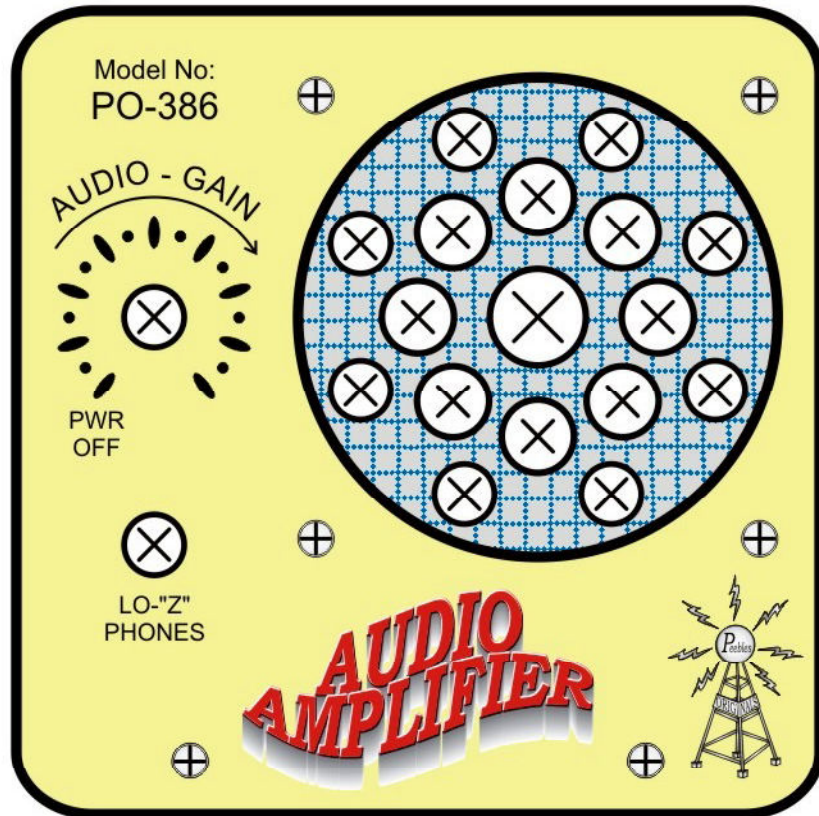
AUDIO
AMPLIFIER

PARTS LIST, PO-386 AUDIO-AMPLIFIER

Perf-Board Parts:
(See pages; Cover, 2 - 6, for Schematic, Layout, Assembly & Wiring)

Qty.	Part:	Details:
1	Resistor, 10-Ohm,	(brown-black-black-gold)
1	Resistor, 10K,	(brown-black-orange-gold)
1	Resistor, 47K,	(yellow-violet-orange-gold)
1	Capacitor, 0.05uf, marked: (.05, or .047)
1	Capacitor, 0.02uf, marked: (.02)
3	Capacitor, 10uf, marked: (10uf)
1	Capacitor, 470uf, marked: 470uf
1	Diode, marked: (1N914 or 1N4148 or 1N34 or 1N60)
1	Integrated Circuit, marked: (LM-386)
1	Perf-Board
3	Terminal-Blocks
4	Mounting Screws, 6-32
4	Stand-Offs, 6-32
4	Nuts, 6-32
12"	Bare Wire

Chassis, Front-Panel Parts:
(See pages; Cover, 2 - 8, for Schematic, Layout, Assembly, Templates, Dial Plate & Wiring)

Qty.	Part:	Details:
1	Battery Holder,	9V., w/mounting hardware, (Battery not included)
1	Potentiometer,	50K w/Switch (SPST), Mounting Hardware, Knob
1	Phone Jack,	w/Mounting Hardware
1	Speaker, 3",	8-ohm, w/Mounting Hardware
2	Fahnstock Clips,	#6, For input terminals
1ea.	Resistor,	10K (brn-blk-org-gld), 47K (yel-vio-org-gld), 100K (brn-blk-yel-gld), See text
7	Screws,	Sheet-Metal, #6 x 1/2"
3	Solder-Lugs,	#6
1	Front-Panel,	4-3/8"- Square x 1/8"-Thick
1	Chassis-Panel,	4-3/8"- Square x 1/8"-Thick
2	Chassis-Rails,	3/4"-Square x 4-3/8"-Long
18"	Hook-Up Wire,	Twisted-Pairs
1	Manual,	User/Assembly